

## CLAIMS

1. A brazing method for brazing a first member to be jointed to a second member to be jointed with intervention of a braze joint formed by fusing and solidifying a brazing material, the method comprising the steps of:

preparing the first member and the brazing material, the first member including a base plate composed of a ferrous material and a diffusion suppressing layer laminated on the base plate for suppressing diffusion of Fe atoms into the braze joint from the base plate during the brazing, the diffusion suppressing layer being composed of a Ni-Cr alloy essentially comprising not smaller than 15 mass% and not greater than 40 mass% of Cr, the brazing material being composed of a Cu-Ni alloy essentially comprising not smaller than 10 mass% and not greater than 20 mass% of Ni;

assembling the first and second members into a temporary assembly with the brazing material disposed between the diffusion suppressing layer of the first member and the second member; and

performing a brazing process by maintaining the temporary assembly at a temperature of not lower than 1200°C to fuse the brazing material and diffuse Ni atoms and Cr atoms into the fused brazing material from the diffusion suppressing layer to form the braze joint, causing the resulting brazing material of the

braze joint to have an increased melting point by the diffusion of the Ni atoms and the Cr atoms to self-solidify the braze joint, and then cooling the resulting assembly.

2. A brazing method as set forth in claim 1, wherein the second member includes a base plate composed of a ferrous material, and a diffusion suppressing layer laminated on the base plate for suppressing diffusion of Fe atoms into the braze joint from the base plate during the brazing, the diffusion suppressing layer of the second member being composed of a Ni-Cr alloy essentially comprising not smaller than 15 mass% and not greater than 40 mass% of Cr.

3. A brazing method as set forth in claim 2, wherein the base plates of the first member and the second member are each composed of a stainless steel.

4. A brazing method as set forth in any of claims 1 to 3, wherein the Ni-Cr alloy of the diffusion suppressing layer has a Cr content of not smaller than 30 mass%.

5. A brazing method as set forth in any of claims 1 to 3, wherein the brazing material has a thickness of not smaller than 20 $\mu\text{m}$  and not greater than 60 $\mu\text{m}$ .

6. A brazing method as set forth in claim 5, wherein the brazing temperature is not lower than 1200°C and not higher than 1250°C, and a duration for which the temporary assembly is maintained at the brazing temperature is not shorter than 30

min and not longer than 60 min.

7. A brazed structure comprising:

a first member to be jointed and a second member to be jointed\_brazed to each other with intervention of a braze joint formed by fusing and solidifying a brazing material of a Cu-Ni alloy essentially comprising not smaller than 10 mass% and not greater than 20 mass% of Ni;

wherein the first member includes a base plate composed of a ferrous material and a diffusion suppressing layer laminated on the base plate, and the diffusion suppressing layer suppresses diffusion of Fe atoms from the base plate into the braze joint formed on the diffusion suppressing layer during brazing and is composed of a Ni-Cr alloy essentially comprising not smaller than 15 mass% and not greater than 40 mass% of Cr;

wherein the braze joint is composed of a Cu-Ni-Cr alloy comprising not smaller than 30 mass% of Ni and not smaller than 10 mass% of Cr and free from segregated solidification.

8. A brazed structure as set forth in claim 7, wherein the second member includes a base plate composed of a ferrous material and a diffusion suppressing layer laminated on the base plate for suppressing diffusion of Fe atoms into the braze joint from the base plate during the brazing, and the diffusion suppressing layer of the second member is composed of a Ni-Cr alloy essentially comprising not smaller than 15 mass% and not greater than 40

mass% of Cr.

9. A brazed structure as set forth in claim 8, wherein the base plates of the first member and the second member are each composed of a stainless steel.

10. A brazed structure as set forth in claim 9, wherein the first and second members each have a planar center portion and edge portions provided by bending along edges of the planar center portion, and are disposed in opposed relation with the edge portions thereof brazed to each other with intervention of the braze joint.

11. A brazed structure as set forth in any of claims 7 to 10, wherein the Cu-Ni-Cr alloy of the braze joint has a Ni content of not smaller than 35 mass%.